Project Summary:

Characterization of Robustness of Ceramic Capacitors to Flex Events

DfR Solutions was asked to analyze the robustness of a leadless ceramic capacitor with regard to flex cracking to determine if it was an acceptable alternative to current failing ceramic capacitors. The reworked boards were subject to testing in two directions of bending and two levels of strain. The boards were also subjected to temperature-humidity bias testing. After flex testing up to 1800 microstrain and 120 hours of THB testing, no failures were found and no flex cracking was observed. The new ceramic capacitors were highly recommended as a design improvement.

Keywords: ceramic capacitor, lead-free, Pb-free, flex crack, flexure, strain gauge, desoldered, electrolytic capacitors, resistors, coils, capacitance, leakage current, temperature-humidity bias, THB, parametric values, high voltage circuits, humidity chamber, insulation resistance, dendritic growth, electrochemical migration, ECM, ion chromatography, cross-sectioning, flux residue, isopropyl alcohol, isopropanol, no-clean solder